

Flora of Johnston Island, Central Pacific

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THE FIRST LIST of plants of Johnston Island, published in 1931 by Christophersen (*Vascular Plants of Johnston and Wake Islands*. Bernice P. Bishop Mus. Occas. Papers 9(13): 1-20, 1931), was based on the collections of the Tanager Expedition in 1923. Three species were reported and a few notes on the vegetation were included. The three species were *Lepturus repens*, *Boerhavia diffusa*, and *Tribulus cistoides*. There is little doubt that these made up the whole vascular flora at the time, as Johnston is a very small, low, sandy, barren island and would not have been difficult to cover thoroughly. Few smaller floras are known (see Fosberg, F. R., *Vegetation of Vostok Island, Central Pacific*. Bernice P. Bishop Mus., Spec. Pub. 30: 19, 1937).

In the late 1930's aviation activities began to change the island. It became an important air base during the war and when I paid it a brief visit during 1946 there was apparently no original vegetation remaining, the whole island being occupied by runways and buildings with disturbed ground in the open places and along paths and roadsides. The plant most noticeable, though not most abundant at that time, was *Pluchea odorata*. Doubtless this had been brought from Honolulu, where it is common, but whether it was introduced accidentally or deliberately is not known to me. A number of other plants were noticed growing as ornamentals around the buildings.

On November 1, 1946, my brother, Kenneth P. Fosberg, made, at my request, a collection of all the plants that he could find during a day

spent on the island. Twenty-six species in all were collected, most of them in duplicate. A coconut seedling was seen but not collected. An almost complete set of plants was presented to the Bernice P. Bishop Museum in Honolulu. The remainder were sent to Washington, but were apparently lost in the mail.

The increase from 3 to 27 species consists mainly of species that are obvious introductions, either deliberate, as cultivated plants, or accidental, as weeds. Only two, *Messerschmidia argentea* and *Scaevola frutescens*, are species that might be expected to be native on an island such as Johnston, and they are both conspicuous enough so they could not possibly have been missed by the Tanager party if they had been present in 1923. The flora has thus been greatly enriched by human activity, and the original flora has maintained itself. This could be likely only in a pioneer habitat such as a dry coral island.

All the weeds as well as the planted species are common on Oahu, Hawaiian Islands. Whether the weed seeds came with nursery stock or by accidental adherence to plane or cargo is hard to know; but observations around other Pacific air bases suggest that the latter process is not negligible.

The list of species follows with such notes on occurrence as were provided by the collector. The general habitat for all is coral sand. Determinations are my own.

Cenchrus echinatus L. Abundant. K. P. Fosberg 7.

Chloris inflata Link. Abundant. K. P. Fosberg 11.

Cynodon dactylon (L.) Pers. One small patch seen. K. P. Fosberg 16.

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- Eleusine indica* (L.) Gaertn. Rare. K. P. Fosberg 17.
- Lepturus repens* (Forst.) R. Br. Abundant. K. P. Fosberg 9.
- Setaria verticillata* Beauv. Common locally. K. P. Fosberg 26.
- Cocos nucifera* L. One seedling seen.
- Casuarina equisetifolia* L. Commonly planted. K. P. Fosberg 20.
- Boerhavia diffusa* L. Abundant, especially in places not walked on too much. K. P. Fosberg 6.
- Amaranthus viridis* L. Common along fences. K. P. Fosberg 3.
- Portulaca oleracea* L. Common. K. P. Fosberg 24.
- Pithecellobium dulce* (Roxb.) Benth. Rare, planted. K. P. Fosberg 22.
- Prosopis juliflora* (Sw.) DC. (sens. lat.). Rare, planted. K. P. Fosberg 25.
- Euphorbia geniculata* Ort. Abundant locally on small dune. K. P. Fosberg 8.
- Euphorbia hypericifolia* L. Common along fences and edges of walks. K. P. Fosberg 2.
- Ricinus communis* L. Common. K. P. Fosberg 10.
- Tribulus cistoides* L. Abundant. K. P. Fosberg 5.
- Thespesia populnea* (L.) Sol. Commonly planted. K. P. Fosberg 18.
- Terminalia catappa* L. Abundantly planted. K. P. Fosberg 23.
- Thevetia thevetioides* (H.B.K.) Schum. Planted, not common. K. P. Fosberg 19.
- Cordia sebestena* L. Planted, rare. K. P. Fosberg 21.
- Messerschmidia argentea* (L.) Johnst. Planted, occasional. K. P. Fosberg 14.
- Vitex trifolia* L. Planted, occasional. K. P. Fosberg 15.
- Scaevola frutescens* (Mill.) Kr. Rare, under *Messerschmidia* tree. K. P. Fosberg 13.
- Pluchea indica* Less. Uncommon, five or six plants seen. K. P. Fosberg 4.
- Pluchea odorata* (L.) Cass. Occasional. K. P. Fosberg 1.
- Sonchus oleraceus* L.? Occasional. K. P. Fosberg 12.